

Three New Species of *Clavija* (Theophrastaceae)

Bertil Ståhl

Department of Botany, Stockholm University, S-106 91 Stockholm, Sweden

Present address: Herbario QCA, Departamento de Ciencias Biológicas,

Pontificia Universidad Católica del Ecuador,

Apartado 17-01-2184, Quito, Ecuador

ABSTRACT. Three new species of *Clavija*, *C. laplanadae* (Nariño, Colombia), *C. subandina* (Napo, Ecuador), and *C. obtusifolia* (Huánuco-San Martín, Peru), are described and illustrated, and their affinities are briefly discussed.

Since the completion of my revision of *Clavija* (Ståhl, 1991) many additional collections of the genus have been made or brought to my attention. In this material several undescribed species have been encountered. The three species described in this paper were all gathered in premontane or lower montane Andean forest, the type of habitat richest in species of *Clavija*.

***Clavija laplanadae* Ståhl, sp. nov.** TYPE: Colombia. Nariño: La Planada Nature Reserve, S of Ricaurte, 1800 m, 78°02'W, 01°10'N, 28 Feb. 1992 (fl), Ståhl & Eriksen 652 (holotype, COL; isotypes, GB, PSO, herbarium of the La Planada Nature Reserve). Figure 1.

Arbor parva ad 4 m alta, surculis glabris. Folia petiolis 7–11 cm longis; lamina oblanceolata vel anguste oblanceolata, 60–120 × 12–28 cm, absque sclerenchymate subepidermali, basi angustata, apice obtuso vel rotundato, margine serrulato vel integro, venis lateralibus conspicuis. Racemi ad 45 cm longi; flores 15–40, 5-meri. Calyx lobis 2.5–2.7 × 2.5–3 mm. Corolla tubo 4 mm longo, lobis 7.0–8.0 × 7.5–8.5 mm. Ovula 3–10. Fructus ignotus.

Treelet to 4 m high, unbranched or rarely sparsely branched, stem to ca. 8 cm diam., young shoots glabrous, brown or light brown. Leaves arranged in 1, 2, or rarely 3 pseudowhorls toward the summit of main stem or branches; blade oblanceolate to narrowly oblanceolate, 60–120 × 12–28 cm, papery when dry, 0.25–0.30 mm thick, somewhat bullate, glabrous, dark green, without subepidermal, extraxillary sclerenchyma, base narrowly attenuate, apex rounded or obtuse, often somewhat retuse, margins entire or sparsely and minutely serrulate with teeth usually most numerous toward base, lateral veins conspicuous, particularly beneath, surfaces between veinlets smooth; petiole 7–

11 cm long, 5–8 mm thick, glabrous. Racemes pendent, to 45 cm long with 15–40 flowers, rachis 2–3 mm thick at base, glabrous, pedicels 4–5 mm long, bracts 0.6–0.8 mm long, inserted at the nodes. Flowers 5-merous, morphologically bisexual (unisexual flowers not seen); calyx seemingly glabrous, lobes broadly ovate, 2.5–2.7 × 2.5–3.0 mm, margins erose; corolla pale orange, tube 4 mm long, lobes very broadly ovate or subrotund, 7.0–8.0 × 7.5–8.5 mm. Staminodes ovoid-gibbous, completely fused with corolla, alternating with the lobes. Stamen filaments glabrous, fused into a tube 1.5 mm long. Pistil narrowly ovoid, 3.0 × 1.0 mm, stigma 2-lobed; ovules 3–10 in 1 or 2 rows. Fruits not seen.

This new species, distinguished by its huge leaves without extraxillary subepidermal sclerenchyma, was collected during fieldwork in southern Colombia a few years ago. However, at the La Planada Field Station it had been known for a long time as one of the plants exhibited along their nature trail. It shows clear affinities with *Clavija eggersiana* Mez, a species of the moist, semideciduous forests of coastal Ecuador, differing primarily in its more rigid leaves with some subepidermal sclerenchyma and its much smaller flowers.

Clavija laplanadae is so far known solely from the type locality, but it is quite possible that a population at the Río Guajalito Reserve in Prov. Pichincha, Ecuador, should be referred to this species. The extant material from the Río Guajalito population is lacking flowers and was tentatively included in *C. eggersiana* in my previous treatments (Ståhl, 1990, 1991).

***Clavija subandina* Ståhl, sp. nov.** TYPE: Ecuador. Napo: Cantón Archidona, S slopes of Volcán Sumaco, on trail between El Pacto and Huahua Sumaco, 1600 m, 00°37'S, 77°35'W, 24 Oct. 1989 (fl), Palacios & Neill 4725 (holotype, MO; isotype, GB). Figure 2.

Arbor parva ad 10 m alta, surculis glabris. Folia petiolis 3–7 cm longis; lamina oblanceolata, 35–60 × 7–12 cm,

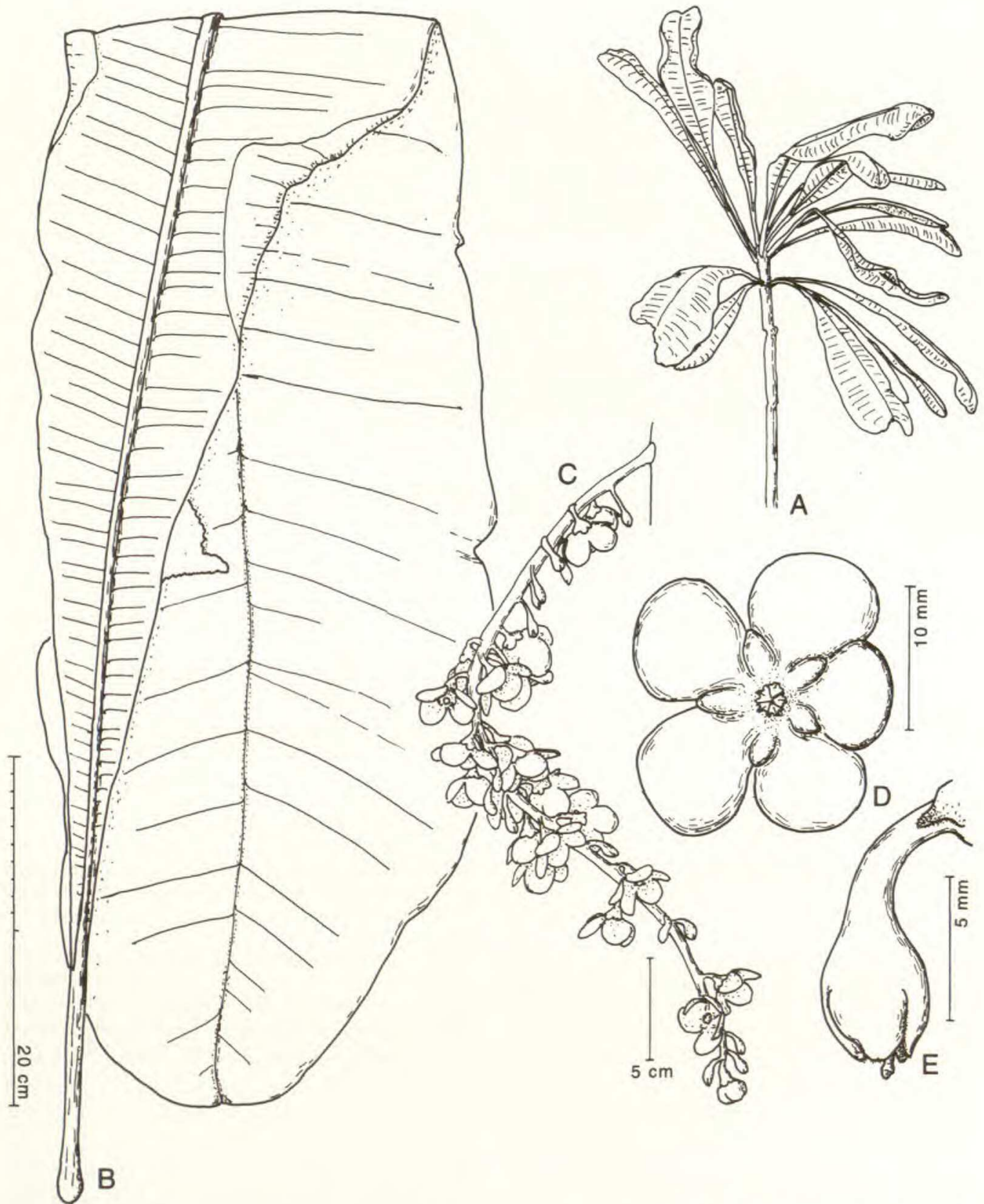


Figure 1. *Clavija laplanadae* Ståhl. —A. Habit. —B. Leaf. —C. Inflorescence. —D. Flower in apical view showing corolla lobes, staminodes, and anthers. —E. Pedicel and calyx. A, unvouchered, drawn from photographic slides; B–E, based on Ståhl & Eriksen 652 (GB).

basi angustata, apice acuto vel breviter acuminato, margine integro alboque, sclerenchymate in fasciculis subepidermalibus disposito, fasciculis adaxialibus immersis. Racemi ad 35 cm longi; flores 30–55, 4-meri. Calyx lobis 3.0–3.5 × 4.0–4.2 mm. Corolla tubo circiter 3 mm longo, lobis 6–7 × 6–7 mm. Fructus ignotus.

Tree to 10 m high, sparsely branched or unbranched, trunk ca. 10 cm diam., young shoots glabrous, brown. Leaf blade oblanceolate, 35–60 × 7–12 cm, coriaceous, 0.30–0.40 mm thick, glabrous, light green beneath, dark green above, with sub-

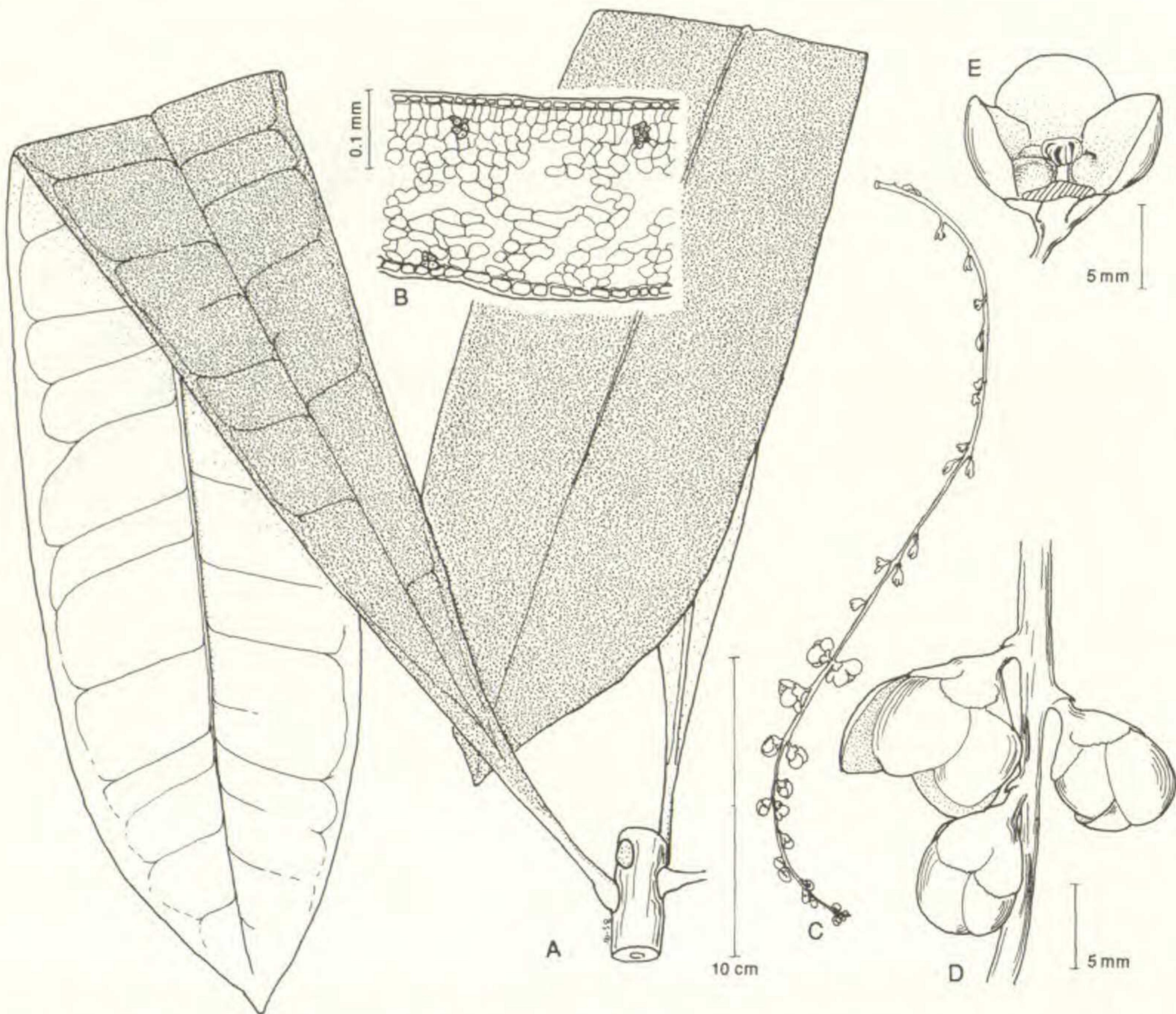


Figure 2. *Clavija subandina* Ståhl. —A. Part of stem with leaves. —B. TS of leaf blade, showing immersed adaxial bundles of sclerenchyma. —C. Inflorescence. —D. Flowers, in bud and at the beginning of anthesis. —E. Staminate flower with one corolla lobe removed showing stamen tube and staminodes. Based on *Palacios & Neill 4725* (MO).

epidermal bundles of extraxillary sclerenchyma, the adaxial bundles somewhat immersed into the mesophyll, base narrowly attenuate, apex acute or shortly acuminate, margins entire with a rather conspicuous pallid border, lateral veins rather inconspicuous, surfaces between veins sparsely striate; petiole 3–7 cm long, 3–6 mm thick, glabrous. Racemes pendent, to 35 cm long with 30–55 flowers, rachis ca. 1.5 mm thick, glabrous, pedicels 2–3 mm long, bracts ca. 1 mm long, inserted at the nodes. Flowers 4-merous (only functionally staminate flowers seen); calyx lobes very broadly ovate, 3.0–3.5 × 4.0–4.2 mm, margins erose; corolla orange-red, tube ca. 3 mm long, lobes suborbicular, 6.0–7.0 × 6.0–7.0 mm. Stamen filaments glabrous, fused into a tube 2 mm long. Pistil very narrowly ovoid, ca. 3 × 0.5 mm, stigma entire. Fruits not seen.

Clavija subandina seems to be most closely re-

lated to *C. repanda* Ståhl, a species restricted to a small area of semi-deciduous, lower montane forest in southwestern Ecuador (Ståhl, 1986). That species differs from *C. subandina* in its repand leaf margins and by lacking or having very little extraxillary foliar sclerenchyma; *C. repanda* seems also to be a smaller and more slender plant than *C. subandina*. An interesting leaf anatomical feature of *C. subandina* is the disposition of the adaxial sclerenchyma, which is not located adjacent to the epidermis as in most other species of the genus but slightly immersed into the subjacent mesophyll (Fig. 2B). This arrangement of the foliar sclerenchyma was previously known only in *C. venosa* Ståhl and *C. clavata* Decaisne (Ståhl, 1991), neither of which can be considered closely related to *C. subandina*.

Clavija subandina has been collected at about

1600–1800 m on the southern slopes of Volcán Sumaco. The discovery of a new species of *Clavija* at this elevation in the Ecuadorian Oriente is rather unexpected. On the eastern side of the Ecuadorian Andes the genus has previously been recorded only once from above 1000 m altitude (*C. weberbaueri* Mez, up to 1300 m). However, at least two species of *Clavija* are known from localities at or slightly above 2000 m on the Pacific slopes.

Despite the relatively isolated location of Volcán Sumaco, its páramo vegetation has been found to be floristically very similar to other páramo areas in Ecuador, including very few endemics, if any (Løjtnant & Molau, 1982). The discovery of *Clavija subandina*, as well as a recently described species of Menispermaceae from the same general area (Barneby, 1990), indicates that additional narrow endemics can be expected from the premontane and lower montane forests surrounding Volcán Sumaco.

Paratypes. ECUADOR. **Napo:** the Pacto Area, 40 km on road from Hollín to Loreto, 1800 m, 24–25 Aug. 1988 (ster.), *Jaramillo 023, 055* (both MO).

***Clavija obtusifolia* Ståhl, sp. nov.** TYPE: Peru. Huánuco: Prov. Leoncio Prado, Dtto. Hermilio Valdizan, near La Divisoria, 1500–1600 m, 27 June 1976 (fl & young fr), *Schunke 9424* (holotype, MO). Figure 3.

Frutex ad 1 m altus, surculis puberulis. Folia petiolis 4–5 cm longis; lamina oblanceolata vel elliptica, 30–33 × 10–13 cm, basi angustata, apice obtuso, margine integro, paginis subtiliter striatis. Racemi 4–6 cm longi, ascendentes; flores 6–12, 5-meri. Calyx lobis 3.5–4.0 × 4.0–4.5 mm. Corolla tubo 2.5 mm longo, lobis 5.0 × 5.0–5.5 mm. Ovula circiter 15. Fructus 2.5–3.5 cm diam., seminibus 7–12.

Shrub to 1 m high, young shoots puberulous. Leaf blade oblanceolate to elliptic, 30–33 × 10–13 cm, subcoriaceous, 0.30–0.35 mm thick, glabrous, green above, pale green beneath, with subepidermal bundles of extraxillary sclerenchyma adjacent to the epidermis on both sides, base attenuate, apex obtuse, margins entire, lateral veins rather inconspicuous, surfaces between veins striate; petiole 4–5 cm long, ca. 2 mm thick, glabrous. Racemes ascending, 4–6 cm long with 6–12 flowers, rachis 0.5 mm thick, sparsely and minutely puberulous, pedicels 4–5 mm long, distally thickened, bracts ca. 0.5 mm long, inserted at the nodes. Flowers 5-merous, morphologically bisexual (unisexual flowers not seen); calyx lobes very broadly ovate, 3.5–4.0 × 4.0–4.5 mm, margins vaguely erose; corolla orange-red, tube 2.5 mm long, lobes 5.0 × 5.0–5.5 mm. Stamen filaments glabrous,

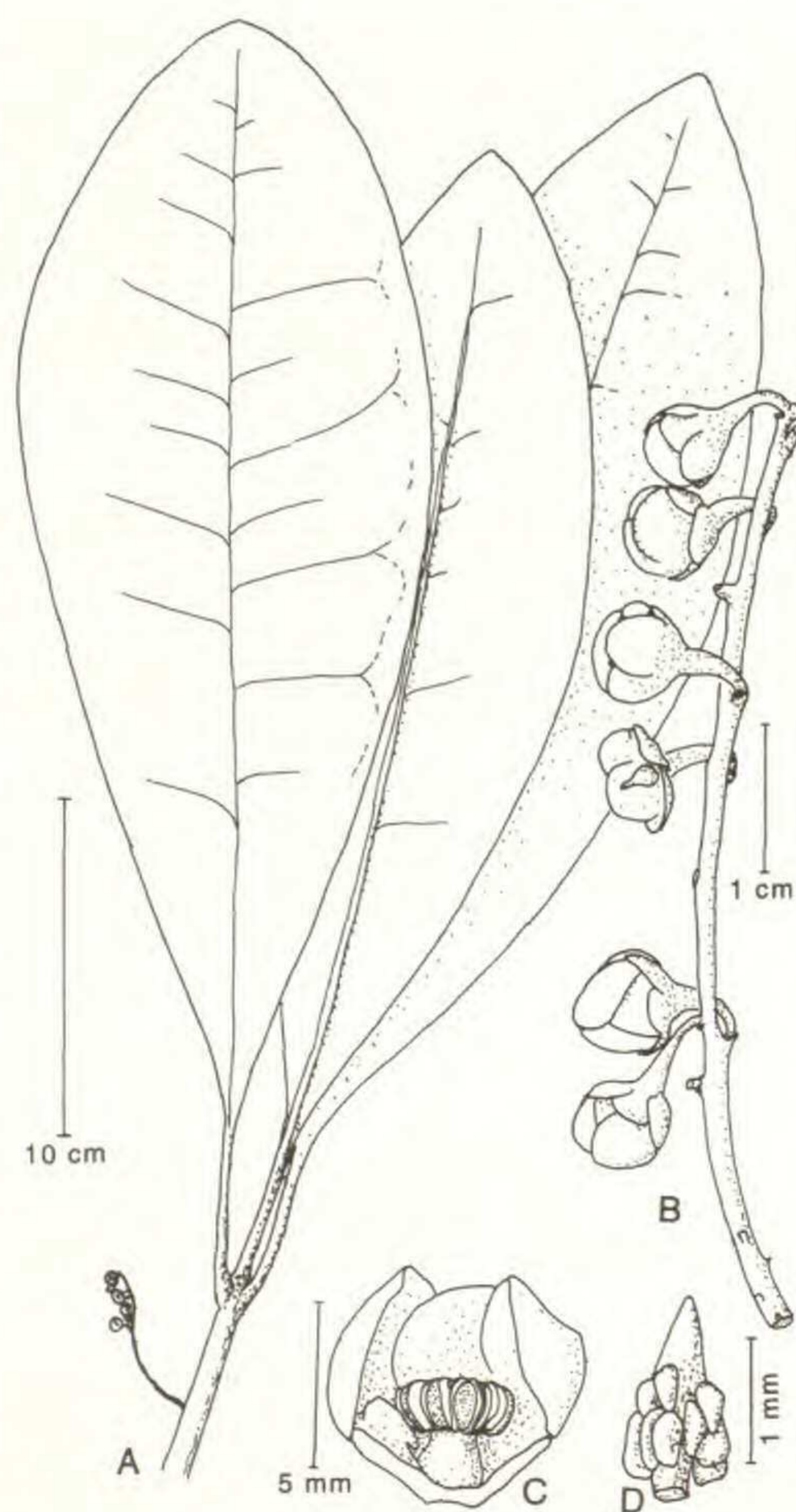


Figure 3. *Clavija obtusifolia* Ståhl. —A. Branchlet with leaves and inflorescence. —B. Inflorescence, flowers in late bud and (third flower from base) without corolla and stamens. —C. Corolla cut open to show staminal tube. —D. Placenta with ovules. Based on *Schunke 9424* (MO).

fused into a tube 1.5–1.7 mm long. Pistil ovoid, 3.0 × 1.5 mm, stigma indistinctly 2-lobed; ovules ca. 15 in two rows. Fruits 2.5–3.5 cm diam., pericarp 0.3 mm thick, smooth; persisting calyx lobes reflexed. Seeds 7–12, irregularly depressed-oblong, 8–11 × 7–8 mm.

In shape and size of the leaves *Clavija obtusifolia* is similar to *C. weberbaueri* Mez, a species of wide distribution in the western Amazon. From *C. weberbaueri*, *C. obtusifolia* differs primarily in its much larger flowers. Other distinguishing features are the obtuse leaf apex, pale green lower leaf surface, and thick pedicels. In addition, morphologically bisexual flowers of *C. weberbaueri* have 1–3 ovules, whereas those of *C. obtusifolia* have ca. 15.

Paratypes. PERU. **San Martín:** Prov. Mariscal Cáceres, Dtto. Uchiza, Cachiyacu de Lopuna, 450–500 m, 11 July 1974 (fr), *Schunke* 7323 (MO); Dtto. Tocache Nuevo, Quebrada de Challua-Gacu, ca. 500 m, 1 Feb. 1979 (fr), *Schunke* 10757 (MO).

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